

## ABSTRACT

A Luneberg lens having a single-layer structure or a multilayer structure containing a plurality of layers having different dielectric constants, wherein the respective structure is produced by mixing a polyolefin resin and/or a derivative thereof with an inorganic filler having a high dielectric constant, the volume ratio of the polyolefin resin and/or the derivative thereof to the filler being 99 to 50 : 1 to 50, adding a foaming agent to the resulting resin mixture and then performing preliminary expansion, and molding the resulting pre-expanded beads; and wherein at least a foamed dielectric layer having a dielectric constant of 1.5 or more is formed using the pre-expanded beads that have been subjected to classification and selection such that  $f(A)$  satisfies the expression  $0.0005 \leq f(A) \leq 0.1$ , where  $f(A)$  is represented by the equation:  $f(A) = \sigma a / A_{ave}$ ,  $\sigma a$  is the deviation of a gas volume fraction  $A_r$  in the foamed dielectric layer, and  $A_{ave}$  is the average of the gas volume fractions  $A_r$  at positions in the foamed dielectric layer.